# Darwin Initiative – Final Report

*(To be completed with reference to the Reporting Guidance Notes for Project Leaders (http://darwin.defra.gov.uk/resources/reporting/) - it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

## Darwin project information

| | |
|---|---|
| Project Reference | 17-025 |
| Project Title | Building evidence and capacity to conserve Hispaniola's endemic land mammals |
| Host Country/ies | Dominican Republic |
| UK contract holder institution | Durrell Wildlife Conservation Trust (DWCT) |
| Host country partner institutions | Sociedad Ornitologica de la Hispaniola (SOH)<br>Parque Zoológico Nacional (ZOODOM)<br>Ministerio de Medio Ambiente y Recursos Naturales |
| Other partner institutions | Zoological Society of London (ZSL) |
| Darwin Grant Value | £ XXX |
| Start/end dates of project | 1st October 2009 to 30th November 2012 |
| Project Leader name | Richard Young |
| Project website | www.thelastsurvivors.org |
| Report authors, main contributors and date | Richard Young, Jorge Brocca, Pedro Martinez, Jose-Nunez Mino and Sam Turvey<br>10th March 2013 |

# 1 Project Background

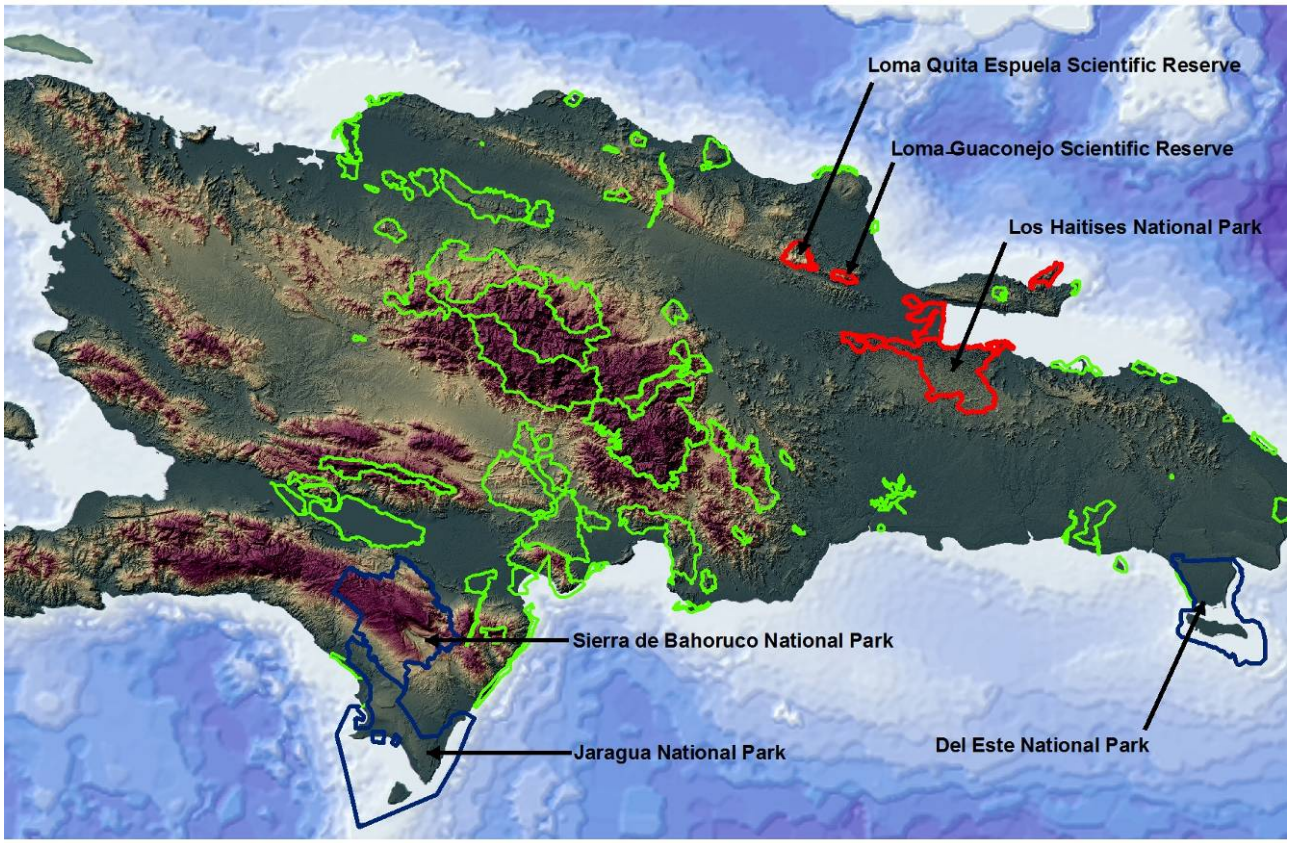
The Caribbean region once supported a very diverse land mammal fauna of around 120 endemic species, but today only 15 are thought to survive and nearly all of them are threatened with extinction. Two of these species, the Hispaniolan solenodon *Solenodon paradoxus* and Hispaniolan hutia *Plagiodontia aedium*, are classified by the IUCN Red List of Threatened Species as Endangered. However, very little is known about the status and ecology of both of these species. and with very low levels of public awareness, it is extremely difficult to design and deliver comprehensive conservation actions and to evaluate the success of any management efforts.

Following scoping trips by Durrell and ZSL partners to the Dominican Republic in 2008, a collaboration of UK and Dominican partners was formed to initiate a project to gather evidence and build capacity for the conservation of these mammals. Starting in 2009, the project's purpose is to enable the long-term conservation of the Hispaniolan solenodon and hutia through participatory species action planning, a strengthened evidence-base, an island-wide monitoring programme, and improved awareness. In the Dominican Republic, the project is now known as "Los Ultimos Sobrevivientes – salvando el Solenodonte y la Jutia de la Hispaniola" which translates as "The Last Survivors – saving the Hispaniolan solenodon and hutia". The title is designed to emphasize the project's context and the importance of these species - before humans arrived in Hispaniola about 25 species of endemic land mammals lived on the island, many of them surviving until Europeans arrived a few hundred years ago, but only the solenodon and hutia survive today.

The most significant achievements of the Last Survivors project are:

- A much strengthened ecological evidence-base to support conservation planning for these species, including identification of previously unknown populations outside of protected areas, phylogeography, quantification of threats, and new information on behavioural ecology.
- Greatly enhanced awareness of the species and their conservation needs at local, national and international levels.

- A Species Action Plan developed by 31 local NGO and private sector partners with significant Dominican Government involvement and support
- Development of new mammal field methods which now enable future reliable monitoring of these species.
- A local partner now equipped with mammal monitoring skills, ecological knowledge, and data management tools and communication skills to play a pivotal role in the Dominican conservation community, to provide the Government with technical advice, and to be effective advocates for the conservation of the Hispaniola solenodon and hutia.




Map 1. The Protected Area System in Dominican Republic (green) with areas where project fieldwork has focussed (red and blue).

# 2 Project support to the Convention on Biological Diversity (CBD)

The main project support to the CBD is through the development of a Species Action Plan (Plan de Accion para la Conservacion de los Mamiferos Terrestres Endemicos de la Hispaniola, Solendon paradoxus y Plagiodontia aedium, 2013-2018) which is being published by the Ministerio de Medio Ambiente y Recursos Naturales and will support delivery of the Dominican Republic's National Biodiversity Strategy. The project has now delivered a national-level monitoring system for these two endemic mammals which will be a key component of wider monitoring of terrestrial biodiversity.

The project relates most closely to the CBD's Cross-cutting theme of Identification, Monitoring, Indicators and Assessments. Under this theme the Convention calls upon countries "to identify components of biological diversity important for its conservation and sustainable use. It also indicates which components countries might need to focus on when designing biodiversity monitoring programmes". The Last Survivors project has produced and delivered a much enhanced ecological evidence-base for the two of Hispaniola's endemic species that will allow many of these actions to happen.

Regular contact was established between the project staff and the CBD Focal Point, Angel Daneris Santana (Vice Minister for Protected Areas and Biodiversity) in the Ministry of Environment to inform them of project progress and to ensure we had appropriate buy-in to the Species Action Planning process.

# 3 Project Partnerships

Following scoping trips by Durrell and ZSL partners to the Dominican Republic in 2008, a collaboration of UK and Dominican partners was formed to design and initiate a project to gather evidence and build capacity for the conservation of Hispaniolan mammals. The Darwin Initiative application process facilitated the agreement around the project partner's roles. These roles were then documented through the signing of a mutually agreed Memorandum of Understanding, although it was always planned that these roles would evolve as the project progressed, particularly in relation to shifting more responsibility from Durrell Wildlife Conservation Trust (DWCT) to "Sociedad Ornitologica de la Hispaniola" (SOH) in the final project phase. Throughout the project, we were very keen to develop an open and consensus-based approach to project leadership and decision-making. SOH report that "All stakeholders were consulted in each part of the project, was based on a lot of dialogue and mutual cooperation, taking all decisions by consensus."

Jorge Brocca (Executive Director, SOH) and Pedro Martinez (counterpart project manager, SOH) took over responsibility for running the project on the ground after a gradual handover from Dr Jose Nunez-Mino (Field project Manager with Durrell Wildlife Conservation Trust) who was the main person managing the project from October 2009 to July 2012. During the three years leading up to this point there was an ongoing process of capacity building provided to Pedro Martinez in particular. This process included both on the job training (shadowing) as well as more formalised training courses which included two significant DWCT courses: "Island Species-Led Action" (ISLA) course which ran in Punta Cana (Dominican Republic) in September 2011 and the "Durrell Endangered Species Management Post Graduate Certificate" (DESMAN) which ran from February to April 2012 at the DWCT HQ in Jersey (Channel Islands).

Ongoing overarching leadership for the project has been provided by Dr Richard Young (Head of Conservation at DWCT) throughout its implementation while Dr. Samuel Turvey (ZSL) has also played a key supporting leadership role on the scientific front. Dr Jose Nunez-Mino (DWCT) provided daily management of the project in Dominican Republic in collaboration with local project partners as well as a wide number of engaged stakeholders, he has also continued to provide support and advice when required after leaving the project. Jorge Brocca played a pivotal and critical role in providing local advice and liaising between the project and government, local community leaders within the Dominican Republic.

The project has had a number of research assistants employed by SOH and recruited from communities local to areas with populations of solenodon and/or hutia. All of these team members received extensive on the job training which focused on both effective field techniques (expedition planning, animal handling, core conservation science principles, use of GPS, map reading, use of GPS/Telemetry collars and public engagement). Jose Ramon ('Moncho') Espinal proved to be the most effective and holistic of all our research assistants, he has not only led the training of other field biologists but has also gained the necessary skills to give educational talks independently. "Moncho" was also able to use his gained knowledge to take part in a three week expedition to Cuba (funded by BBC Wildlife Trust) in April 2012 to initiate a preliminary investigation on the status of the Cuban solenodon and hutia species. "Moncho" was a leading participant in the expedition and showed great skill in transferring his knowledge and skills to others. Yimel Corona is another of the project research assistants worthy of a special mention. He has worked very closely with Ros Kennerley (PhD candidate, University of Reading) and has developed particularly strong skills in radio-tracking.

Communications between project partners, relevant stakeholders and the general public has been a shared responsibility, a tactic which has proven to be highly successful in raising the level of awareness and knowledge of the project and the species at both the national and international level.

The Educational Department at ZooDom continues to raise awareness of the two species and is also now in the late stages of planning for their first exhibit to show these two species to the general public.

To see the final project team please visit http://www.thelastsurvivors.org/people/.

**Other collaborations:** The project has forged, maintained and expanded the number of collaborators which have engaged with the project:

- The **Punta Cana Ecological Foundation** has been involved with the project from the start and has provided a substantial amount of logistical support ranging from hosting courses at the Foundation through to encouraging support at the private reserve. Students from Vermont Technical Collage (USA) based at Punta Cana Ecological Foundation have also assisted in carrying out camera trapping at the private reserve in the area.
- The **British Embassy** in the Dominican Republic, led by ambassador Steven Fisher, has also continued to help and support the project. They have not only hosted several events at the ambassadors residence but have also promoted the work carried out by the project on their website (http://ukindominicanrepublic.fco.gov.uk/en/news/?view=News&id=825097282)

- The **University of Reading,** through Ros Kennerley (a BBSRC funded 4 year PhD student; http://www.reading.ac.uk/caer/student_project_ros_kennerley.html), has carried out ground breaking radio telemetry work to investigate the behaviour, ecology and habitat use of both solenodon and hutia in areas a human altered landscape. Ros secured further funding for her research via the **Mohamed bin Zayed Species Conservation Fund** enabled her to both purchase equipment and provided extensive training.
- The UK-based company, **Ecological Research & Training**, provided further support to develop the latest version of species distribution models for the species.
- **Funk Productions** completed the production of infomercial films in September 2011, these have been and continue to be distributed and used in educational presentations.
- **Island Conservation (IC)** has engaged actively with the project particularly via their Caribbean Programme Manager, Kirsty Swinnerton who taught very important teaching modules at the "Island Species-Led Action" (ISLA). This relationship has also provided post project work to three of our trained research assistants (Nicolas Corona, Yimel Corona and Jose Ramon Espinal).
- We have also increasingly worked in collaboration with the Darwin initiative project in Haiti (**"Building a future for Haiti's unique vertebrates"; REF 18011**). This collaboration has included exchange of methods, information as well as on the ground training.
- The relationship between the project and other Dominican NGOs such as **Grupo Jaragua** (http://www.grupojaragua.org.do/index_english.html) and **Fundacion Quita Espu**ela (http://www.flqe.org.do/English/1home_english.html**)** as well as reginal initiatives such as the "**Caribbean Biodiversity Corridor**" (http://www.unep.org/disastersandconflicts/CountryOperations/Haiti/Internationalcooperation/CaribbeanBiologicalCorridor/tabid/106585/Default.aspx) have grown throughout the project duration. This broader engagement is reflected in the number of different organisations and individuals who engaged in the development of the Species Action Plan during the workshop held in October 2012. They will all play critical roles in ensuring the action plan is implemented effectively.

To see a more complete list of stakeholders who have engaged with the project, please visit: http://www.thelastsurvivors.org/the-project/supporting-organisations/

# 4 Project Achievements

## 4.1 Impact: achievement of positive impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

The project's longer term goal (i.e sub-goal), and therefore potential impact, was to generate knowledge, awareness and conservation capacity so that "the probability of long-term survival of Hispaniola's endemic land mammals and their habitats is significantly improved". An indicator of this potential impact is whether the Species Action Plan (SAP) is adopted into Dominican Republic National Biodiversity Strategy and Action Plan and priority activities from the SAP are initiated within 2 years of project end (i.e. by 2015). Based on the success of the SAP workshop and writing up process, and the appetite of the Dominican Government to incorporate endemic mammals into protected area planning, management and monitoring, it looks very hopeful indeed that the DI project will achieve its intended impact.

## 4.2 Outcomes: achievement of the project purpose and outcomes

The overall project purpose was to "Enable the long-term conservation of the Hispaniolan solenodon and hutia through participatory species action planning, a strengthened evidence-base, an island-wide monitoring programme, and improved awareness." As described in more detail in section 4.3 and elsewhere, we have significantly enhanced the evidence-base to underpin the planning, implementation and monitoring of conservation actions for these species and radically increased national and international awareness of the species.

SOH report the following: "*In our country these two animals, solenodonte and hutia, were known only by some farmers, [but] thanks to the project we were able pass on the importance of these endemic animals to over one million Dominicans through radio, TV, press releases, information workshops, mouth to mouth, surveys, amongst other methods, changing attitudes of many Dominicans toward these species. One of the most important results is the action plan for the species, which will help to chart the next phase of this Project, will also serve to project sustainability and fundraising*."

## 4.3 Outputs (and activities)

The overall project purpose was achieved through four main outputs:

1. **Scientifically robust data on conservation status and requirements of the Hispaniolan solenodon and hutia and their key threats are collected, analysed and disseminated.** The overall level of knowledge that we now have of the current and past distribution of these two species has significantly improved thanks to the implementation of this project, with a number of previously unknown and currently unprotected populations identified. Furthermore, we have demonstrated that the current distribution maps published on the IUCN Red List website of both species will need to be modified and updated, with extensions to the global range of both species needed, work which is already underway. We now understand the phylogenetics and phylogeography of both species far better, with the hutia in particular showing three highly distinct populations which need to be managed independently. The work carried out by Cristina Secades (Imperial College) as part of the project has also added to a much better understanding of levels of awareness and perception across South-West Dominican Republic, the most important region for both mammals. The third significant body of research, lead by Ros Kennerley (University of Reading), is yet to be completed but has already revealed important information about the ecology and behaviour of solenodon and hutia and the extent to which they come into conflict with farmers. This has been achieved through radiotracking, the first time ever these species have been radiotracked. This extensive research has contributed valuable information for the Species Action Plan.

2. **Skills in conservation biology and planning are strengthened in local partner organisations and more widely in Dominican Republic.** Nearly all of the original objectives within Output 2 have been achieved. The counterpart project manager attained his PGC in Endangered Species Management. Two of our field assistants received EDGE sponsored training, and Durrell ran the 2 week ISLA course in DR in 2011 with 18 participants. One measure of the skills development was that the counterpart project manager took over the overall project management in the last 6 months, including successfully leading the SAP process. Regular performance appraisals showed the excellent progress made by the project field staff in terms of developing project management and scientific skills. The project achieved other unplanned objectives under Output 2. For example, two Haitian field biologists (Anderson Jean & Enold L Jean) from the Audubon Society of Haiti, employed by the Darwin Initiative funded project in the Massif de la Hotte (Ref 18011 “Building a future for Haiti's unique vertebrates), were trained in solenodon and hutia research field techniques by the team in Dominican Republic.

3. **Awareness of status and conservation needs of Hispaniolan endemic land mammals substantially improved at local, national and international level.** The level of awareness of both solenodon and hutia has been raised at both the national and international level. The project has used every tool available to raise general awareness of the fate of Caribbean mammals and the two target species in particular. These tools have included: giving presentations (schools, colleges, Universities, local communities and others), twitter (@solenodon_joe), facebook (“The Last Survivors – Hispaniolan Land Mammal Project”), project website (www.thelastsurvivors.org www.losultimossobrevivientes.org) and press (digital media, videos, newspapers, radio, books and television). Another important event was the use of the solenodon as one the nation’s official stamps by the Dominican Postal Service (Servicio Filatélico Inposdom). At the international level, the featuring of the project on David Attenborough’s “Attenborough’s Ark” in November 2012 (repeated several times since on international commercial channels) was a particularly resounding success.

4. **Strengthened capacity for conserving and monitoring the Hispaniolan solenodon and hutia.** A total of 31 organisations were represented during the Species Action Planning workshop held in October 2012. Additionally, several members of communities neighbouring key solenodon and/or hutia populations were also present and contributed to the action planning process. This fully inclusive process can be attributed to two project actions: 1. The large network of stakeholders which the project engaged with and 2. Capacity building in order to instil the confidence and ability to engage in the action planning process. The Ministry of Environment and Natural Resources is currently developing its island-wide monitoring programme and will be using the methods developed by the project after inviting project representatives to several of the planning workshops.

## 4.4 Project standard measures and publications

See Annex 4 and 5.

## 4.5 Technical and Scientific achievements and co-operation

The project has delivered a particularly strong and wide-ranging series of scientific outputs, which together have provided a much more robust scientific-evidence base into the status, distribution, ecology, threats, and community interactions with both Hispaniolan solenodons and Hispaniolan hutias.

**1. Distribution and ecology of solenodon and hutia**

Extensive field work was carried out across large parts of the Dominican Republic. During the first phase of the project (the first twelve months of the project) the field work was focused in and around National Parks in the South of the Island (NP Jaragua, NP Sierra de Bahorucco & NP del Este) as well as one private reserve (Punta Cana ecological Foundation). This enabled us to develop our field techniques in order to become increasingly effective at identifying the signs of presence of solenodon and hutia. This process initially consisted in confirming what we suspected were signs of both species by placing infra red camera traps or carrying out nightly explorations. The second phase of the project was initiated thanks to further funding by the BBC Wildlife Fund which enabled us to begin work with a new team in three national parks in the North of the island (NP Los Haitises, NP Loma Quita Espuela and NP Guaconejo) while the rest of the team continued to work in other areas of the country including PN Armando Bermúdez (Cordillera Central), PN Sierra Martin Garcia & PN Nalga de Maco as well as surrounding areas.

This research has provided us with an extensive data set made up of over 320 random sampling plots & over 600 opportunistic points collected over a total of 288 days in the field. This data set has been used to carry out species distribution modelling (using maximum entropy models) by extracting relevant environmental data from GIS layers available. The two variables that have been identified as having the strongest influence on potential distribution are land cover type and geology. However, the land cover laps available are not current (10 years old) but the Ministry of Environment is due to release updated land cover maps very shortly which may well improve the quality of the maps we have developed.

The primary dataset on contemporary solenodon and hutia distribution across the Dominican Republic has also been further complemented by compilation of all available historical, archaeological and palaeontological records of both species across the Dominican Republic and Haiti, on the basis of published scientific papers, unpublished/anecdotal reports, new investigation of existing museum collections, and new palaeontological fieldwork by members of the project team. This led to the collection of 107 further solenodon records and 60 further hutia records, showing a wide distribution across much of the island. As these additional older locality records, dating back decades or centuries, may not reflect current-day habitat conditions (due to high levels of recent regional deforestation and habitat conversion) but will still be associated with the same abiotic environmental variables (e.g. geology), these data are currently being analysed using MAXENT to further quantify the relative significance of different abiotic variables in determining the occurrence of both mammal species, and to fine-tune the species distribution models determined using modern-day data alone.

This core field research programme was supplemented by several associated UK graduate student field-based research projects: three MSc projects (Imperial College London, two projects in 2011; University of East Anglia, one project in 2012) and one PhD project (University of Reading, 2011–present). This has led so far to the production of four MSc dissertations during the lifetime of the project:

“Foraging habitat preference of the Hispaniolan solenodon (*Solenodon paradoxus*)” (Sarah Hoy, Imperial College London, 2011). Line transect surveys for indirect solenodon sign (spoors) were conducted in different habitat types around the village of Mencia to determine solenodon habitat utilisation and preference, with spoors found significantly more often in forest and uncut pasture than other habitat types, and in close proximity to known den sites. Rainfall was also shown to have a significant impact on spoor detection; significantly more spoors are present in areas with low vegetation density, fewer rocks and deeper soil, but it is uncertain whether these habitat characteristics affect solenodon foraging behaviour or subsequent spoor detection. This survey method was demonstrated to be an effective approach for surveying solenodons in a rapid, cost-effective manner.

“Habitat-species association in the Hispaniolan solenodon (*Solenodon paradoxus*): a quantitative study of an endangered Caribbean mammal” (Rocio Pozo Rodriguez, Imperial College London, 2011). Assessed the habitat associations of Hispaniolan solenodons at two spatial scales (across fragmented forest and agricultural habitats in the buffer zone of Sierra de Baoruco National Park, and across a series of protected and non-protected areas across southwestern and eastern Dominican Republic) using generalised linear models to investigate association of different habitat variables with presence, absence, and/or abundance of solenodons or solenodon sign. Habitat type, elevation, and geological properties of the environment (rockiness and soil depth) were effective predictors of solenodon presence, with the species most closely associated with dry and broadleaf forest.

“Human-wildlife conflict in the Dominican Republic: investigating the predation risk to the Hispaniolan solenodon (*Solenodon paradoxus*) from domestic dogs (*Canis familiaris*)” (Jessica Knapp, University of East Anglia, 2012). Used GPS collars to analyse the movement and home-range size of free-ranging village dogs in relation to key habitat types and *S. paradoxus* home ranges around Mencia village. Thirteen individual dogs (7 males and 6 females) were tagged for 1 to 3.5 nights, revealing that they were most active at 22:30 p.m., 01:00 a.m. and 06:00 a.m. Home range size was estimated using kernel density estimation to vary from 12.12 ha to 847.75 ha, with dependency on the urban area of the village and evidence for roads being used as corridors of movement. An important area of overlap (72.33 ha) between *C. familiaris* and *S. paradoxus* was identified close to the village (<100 m).

“The ecology of Hispaniolan solenodon and Hispaniolan hutia in agricultural and native forest systems in the Dominican Republic” (Ros Kennerley, University of Reading, 2011–present). This ongoing BBSRC funded PhD research project aims to investigate patterns of habitat use by both the solenodon and hutia along a gradient from native habitat to primary agricultural land; to determine home ranges and resource use, and to find out if these change temporally and to explore potential human-wildlife conflict in agricultural areas. Fieldwork involved censusing, monitoring and the collection of spatial and ecological data for both Hispaniolan mammal species using VHF and GPS tracking techniques and the collection of behavioural information using camera traps at den sites. Three field seasons have been conducted, comprising a total of 19 months in the field, with the habitats around the villages of Mencia and Las Mercedes representing the primary study sites.

## 2. Systematics of hutia and solenodon

The taxonomic status of both of Hispaniola’s land mammals has been a source of controversy for much of the past century, with both species sometimes proposed to consist either of multiple allopatrically distributed subspecies or even cryptic sister species, or alternately to represent monotypic island-wide populations. Assessing the evolutionary relationships between both solenodons and hutias across Hispaniola has been conducted using both genetic and morphometric data as a key part of the project’s research output, to better define evolutionarily significant units and high-priority populations for conservation management.

The phylogeographic relationship of hutia populations across Hispaniola was investigated using 41 hair, blood, soft tissue, bone and faecal samples obtained during fieldwork and from available historical museum samples, representing seven collection localities covering the three major biogeographic regions of Hispaniola. Phylogenetic analysis using mitochondrial DNA (cytochrome b) revealed a pattern of historical allopatric lineage divergence in the Hispaniola hutia, with the spatial distribution of three distinct hutia lineages (northern, southeastern and southwestern) that are biogeographically consistent with the island’s geotectonic history. The deepest divergence between hutia lineages (north–south split) dates to c. 0.6 Ma, equivalent to subspecies-level divergences in other extant hutia species. Coalescent modelling, approximate Bayesian computation and approximate Bayes factor analyses support these phylogenetic inferences and indicate near-complete genetic isolation of these biogeographically separate populations. The three different lineages have markedly different modal effective population size estimates (7477, 6509 and 18086 for northern, southeastern and southwestern populations respectively), and markedly different levels of interhaplotype diversity (one mutational step between neighbouring haplotypes in northern population, 1–23 steps in southern populations). These phylogeographic findings indicate that the three allopatric hutia populations should all be treated as distinct management units for conservation, with particular attention required for the northern population (low haplotype diversity) and the south-western population (high haplotype diversity but highly threatened). This research has now been published in the international peer-reviewed scientific literature (Brace et al. 2012), and represented a formal project collaboration with the ancient geneticists Dr Ian Barnes and Dr Selina Brace of Royal Holloway University of London, with research ultimately comprising a part of Dr Brace’s PhD dissertation.

The taxonomic status of these three genetically distinct hutia lineages was further investigated using morphometric analysis of 181 modern and Late Quaternary fossil adult hutia crania and/or mandibles, measured in UK and international museum collections and from further samples collected during project fieldwork (from dead hutia individuals encountered in the field). Craniodental measurement data display morphological differences between northern and southern Hispaniola using MANOVA and PCA. The holotype specimen of *Plagiodontia aedium*, which failed to yield amplifiable DNA for phylogeographic analysis, is morphometrically associated with the southern hutia population. PCA further demonstrates that levels of morphological variation between modern hutia populations are lower than levels between living hutias and extinct taxa from Hispaniola, so that living hutias are interpreted as the single species *P. aedium*. Conspecific Hispaniolan hutia populations represent two distinct subspecies, *P. aedium aedium* (southern populations) and *P. aedium hylaeum* (northern population). This research has also now been

published in the international peer-reviewed scientific literature (Hansford et al. 2012), and comprised part of the MRes project research of Mr James Hansford at the University of York.

Comparable genetic analysis of 28 field-collected and archival museum samples of Hispaniolan solenodons are currently being analysed to investigate whether geographical relationships between allopatric solenodon samples show congruent phylogeographic patterns to those now demonstrated for hutias. This research is again being conducted in collaboration with Royal Holloway University of London. Although this research is not yet completed, preliminary results suggest that interestingly, solenodons do not show substantial lineage divergence across Hispaniola, indicating different evolutionary histories and associated geographical conservation priorities for both species.

**3. Local ecological knowledge on Hispaniolan land mammals**

Community-based interview fieldwork using a standardised questionnaire approach was conducted by Imperial College MSc student Cristina Fernandez-Secades from 5 May to 23 June 2012 in nine small rural communities along the Dominican-Haitian border (situated north and south of Sierra de Bahoruco National Park), to investigate the usefulness of LEK as a conservation tool in native land mammal conservation. A total of 360 respondents were interviewed, comprising 110 Dominicans, 147 Haitians living in the Dominican Republic, and 103 Haitians living in Haiti. Over half of all respondents from social groupings that have extensive contact with local forest ecosystems were able to identify solenodons, and a smaller but still relatively substantial number of these respondents accurately identified hutias. This level of local ecological knowledge (LEK) contrasts with the finding that both species are only rarely encountered by respondents, with considerable variation and confusion over their vernacular names; and that relatively few respondents consider them to be of any economic significance as potential crop pests, with further confusion over ideas that solenodons eat crops and hutias kill chickens. These results have wider implications in that they demonstrate that LEK can represent an important conservation tool for determining status and threats for a much wider range of species than the large-bodied charismatic or economically significant taxa that have been the primary research focus of most previous interview-based studies.

This study provided the first quantitative information on levels of native mammal mortality caused by different domestic mammals in Hispaniola. Respondents reported 57 native mammal deaths (38 solenodon deaths, 19 hutia deaths) from 2000–2010. Dog predation was the most important cause of identified native mammal mortality, being responsible for 73% of reported deaths; 57% of all native mammal deaths were caused by village dogs trained to kill mongooses and feral cats, and which are allowed to roam freely around the vicinity of villages during both day and night. In contrast, native mammal deaths caused by cats or hunting dogs are much rarer events, despite previous suggestions that these animals may also pose significant threats, and threats caused by poison baiting or targeted hunting are similarly negligible. Our interview data therefore provide an important baseline to inform appropriate management strategies and community-level educational initiatives for reducing levels of native mammal mortality by free-ranging dogs. The survey also provided important new evidence for the continued survival of both species across a large part of the southern Dominican-Haitian border region south of the Neiba Valley, including areas of easternmost Haiti where previous surveys that did not incorporate community interviews failed to document the presence of either species. The results of this interview study have been written up and submitted for review in the international peer-reviewed journal *Conservation Biology* (Turvey et al. in review).

Key findings for each of these different project research themes were presented at the Species Action Planning meeting at the end of the project, and have been assimilated into the national endemic mammal action plan. These new data are also currently being used to reassess the Red List status of both Hispaniolan native land mammal species by the project team, through their membership of the newly reformed IUCN SSC Small Mammal Specialist Group.

**References:**

Brace S, Barnes I, Powell A, Pearson R, Woolaver LG, Thomas MG, Turvey ST. (2012) Population history of the Hispaniolan hutia *Plagiodontia aedium* (Rodentia: Capromyidae): testing the model of ancient differentiation on a geotectonically complex Caribbean island. *Molecular Ecology* **21:** 2239-2253.

Hansford J, Nunez-Mino JM, Young RP, Brace S, Brocca JL, Turvey ST (2012) Taxonomy-testing and the 'Goldilocks Hypothesis': morphometric analysis of species diversity in living and extinct Hispaniolan hutias. *Systematics and Biodiversity* **10:** 491-507.

Turvey ST, Fernandez-Secades C, Nunez-Mino JM, Hart T, Martinez P, Brocca JL, Young RP (in review) How useful is local ecological knowledge as a conservation tool for small mammals in a Caribbean multicultural landscape? *Conservation Biology.*

## 4.6 Capacity building

Capacity building has always been central to the project from the moment it was designed and throughout its execution. The partners have taken an adaptable management approach to this aspect of the project which has included both implementing the training outlined in the original proposal as well as identifying further opportunities for the project to offer appropriate training. Capacity building explicitly outlined in the original proposal and executed during the project:

- **Training of counterpart project manager**: Pedro Martinez was recruited in February 2010 by SOH and shadowed the field project manager recruited by DWCT (Dr Jose Nunez-Mino) for over two years before taking overall responsibility for the role. This has been a gradual and very effective mechanism which went through several gradual phases. Pedro was able to be the lead manager in implementing a part of the project in the north of the Island after securing funds from the BBC Wildlife Trust in August 2011. Pedro identified and contracted his own field team (Timoteo Bueno and Jose Rafael de la Cruz) and then led both their training and expeditions to carry out field work (both social and ecological research).
- **"Durrell Endangered Species Management Graduate Certificate" (DESMAN).** Pedro Martinez took part in this internationally recognised course accredited by the University of Kent. The 12 week course (February-April 2012) runs at the DWCT headquarters in Jersey (Channel Islands) and is designed to equip conservationists with the skills needed to manage species recovery programmes.
- **"Island Species-Led Action" (ISLA).** The course ran from the 19th to the 27th of September 2011. This specialist programme focused on the recovery of endangered birds and mammals, with particular attention on threats such as invasive species and habitat loss, along with providing a rare opportunity for island conservationists and researchers to explore some of the issues concerning the recovery of island species and habitats. The course was attended by Pedro Martinez as well as all the research assistants engaged with the project at the time as well as a number of other national and regional biologists.
- **Training of all research assistants.** A total of six field research assistants worked with the project and received extensive on the job training. This was primarily done in the field and had a particular focus on providing training on transferable field skills including GPS use, map reading and expedition planning. However, it was not limited to project field assistants alone or the topics just listed. For example, some of our research assistant had little or no IT skills when they joined the project so personalised training was provided when necessary. Research assistants from the Darwin Initiative project in Haiti ("Building a future for Haiti's unique vertebrates"; REF 18011) and volunteers from a separate Haiti conservation project (http://www.thelastsurvivors.org/2012/04/busy-times-and-many-visitors-by-ros-kennerley/) also joined the project to receive training. The success of this capacity building exercise is demonstrated in the way that much of the later training was led by project research assistants themselves.

Further training provided:

- **GIS Training course.** A ten day Geographical Information Systems (GIS) training course was run in March 2011 for a range of young biologists as well as key project staff including Jorge Brocca and Pedro Martinez. This specialised training was designed specifically to equip the project team with the skills required to run the MaxEnt model program after extracting and organising data from a GIS system.
- **Training in Haiti.** As mentioned previously, several Haitian biologists participated in both formalised courses (DESMAN & ISLA) and by joining in with project teams but further from this both Pedro Martinez and Jose Ramon Espinal travelled to Haiti to provide training to a small group of Haitian conservation volunteers in Anse-a-Pitres in the south-East of Haiti.

SOH report "*Yes, SOH capacity has grown significantly, the director, the project manager and employees have been trained and learned much from the experience and capabilities of our partner Durrell and ZSL, always available at all times that we needed them. The excellent staff of Durrell in case of Jose Nunez was one of the best acquisitions that this project has had, which teach each of the members of SOH, leaving an incredible capacity for replicate in other conservation projects of Caribbean biodiversity. One of the evidences that we can see is the utilization of the SOH staff of in a project of invasive species led by CABI and Island Conservation, who were impressed by the knowledge that our team has and will be used by this project. Our staff at the moment, is trained and can lead similar projects in the Caribbean, which greatly facilitates the application for projects in this category, but our short-term goal is to raise funds to keep our team following the action plan activities noted, or other work that our staff can use the tools left by this project.*

*SOH has been trained in different components among which include the development of staff skills at the organization:*

*1- Ability to lead projects for species conservation*

*2- Development and implementation of action plans in endangered species*

*3- Development and implementation of project monitoring of species.*

*4- Skill to the telemetry and trapping of wildlife species.*

*5- Development of security protocols*

*6- Development and implementation of education programs*."

## 4.7 Sustainability and Legacy

It is SOH's view that in terms of project's legacy "*the main achievements are the institutional and personnel capacity*." Regarding sustaining the project's activities beyond the DI funding it is very encouraging to hear from SOH that "*Project staff are assigned to an island restoration project for 6 months at this time it is expected that together with Durrell and ZSL, consider the best strategy for raising funds to continue the second phase of this project. Our partnership with Durrell and ZSL in this project was very important. Our communication and partnership will be permanent and will achieve the development of other projects, mainly the second phase of the last survivors, which ensure the conservation of species on the island of Hispaniola."* It is particularly pleasing to see that three members of our project team have gone on to be employed by Island Conservation on a major island ecosystem restoration project, a fact that can be attributed to the training and experience they got while working with the DI project. A particular project success that will endure is in building a highly effective team of Dominican conservation practitioners with a unique set of field and management skills to work on these highly unusual species.

From the perspective of the UK partners, we see the sustainability of the project residing in four other main areas:

1. The IUCN-SSC Small Mammal Specialist Group was set up during the course of this project, with the Project Leader being invited to Co-Chair the group thanks in part to his work on this DI funded project which achieved much profile within the international conservation community. The SMSG will be the main vehicle through which the UK partners will support the implementation of the Hispaniolan mammal SAP. Building on the success of the Last Survivors project, the SMSG is also developing a wider Caribbean network of scientific and conservation management experts engaged in Caribbean small mammal conservation issues.
2. The project has been very successful at raising levels of awareness and interest in both solenodon and hutia at national and international levels and we now have a number of effective mammal conservation advocates working at national and local levels. We will continue to do this by maintaining the project website and social media sites. Furthermore, our extensive research team and their area of influence within the DR means that the conservation message will continue to be promoted in and around at least six areas where substantial solenodon populations can be found.
3. The conservation science evidence-base has changed our view of the extinction risk of both the Hispaniolan solenodon and hutia, with both species in all probability due to be downlisted to Vulnerable on the IUCN Red List. This is as a result of new knowledge generated by the project showing them to be more widely distributed than previously thought. On the flipside, some of these newly identified populations are unprotected and the main populations in the southwest of the DR are under great threat from habitat degradation despite the extensive protected area network in that region.
4. This science is synthesised in the Species Action Plan which now sets the national-level agenda for solenodon and hutia conservation over the next 5 years and beyond. In fact, the workshop participants elaborated a 25 year vision where "by 2038 the populations of *P. Aedium & S. paradoxus* on Hispaniola will be maintained stable or increasing and no longer on the national or international Red List ". SOH are currently in the process of developing a multi-stakeholder committee whom will oversee the delivery of the SAP across the next 5 years, and will serve as an expert advisory panel to the Government.

# 5 Lessons learned, dissemination and communication

From the UK partners' perspective, we see the following as the key scientific and management lessons to be drawn:

- With sufficient planning and efficient survey designs, conducting a national-scale monitoring for elusive mammals within the DR is feasible. A number of previously unknown hutia and solenodon populations were found, even on land owned and managed by hotel and tourism companies. Both species have a wider distribution than previously thought, which is likely to lead to both species being downlisted to Vulnerable on the IUCN Red List of Threatened Species. However, high rates of forest degradation are occurring within some of the DR's most ecologically important protected areas, particularly in southwestern DR, are likely to be leading to population declines.
- Levels of awareness of the project's two target endemic mammals within a wide number of sectors of DR society was surprisingly and problematically low. Combined with low skill levels within the NGO and academic sectors for surveying these species, this lack of knowledge has hampered development of conservation actions for these species.
- Due to high staff turnover following elections of new governments, it was essential to identify and build working relationships with civil servants whom have a track record of job security in order to sustain the impact of the project.
- The NGO community in the Dominican Republic is highly fragmented and prior to the project the institutions working on Hispaniolan solenodons and hutias were not sharing information which was limiting knowledge generation and synthesis. The SAP process facilitated this process for the first time.

The main target audiences for the project results were government officials within the Ministry of Environment and Natural Resources, protected area managers, environmental NGO managers and scientists, and private landowners holding endemic mammal populations. The main players within these stakeholder groups were identified early on in the project, and personal relationships were built with our DR based project staff. Communications were therefore often in person, or through written reports and workshops, particularly the final Species Action Planning workshop. Within the SAP, there are agreements for communication between stakeholders so that progress of the implementation of the SAP can be shared.

In terms of dissemination and communication of project results within the DR, SOH report that "*The information obtained in the project was disseminated primarily by our website, which contained all activities were progressing, and through national media outlets, and much information was shared with other non-profit organizations, and through a quarterly report to the Ministry of Environment. The action plan for the species is a document that summarizes many things that have been obtained as a result of this project, 500 documents were printed which will be delivered through a ceremony of the authorities, NGOs, members of the press. Also anyone else, who is interested in making actions, will be given a copy of the plan. The website will remain active and will be managed by Durrell and SOH. Will continue handing out leaflets and displaying the video obtained by this project at all activities involved SOH. Furthermore SOH staff and members also function as teachers in different universities and schools, these will be in charge of teaching the next generation the importance of these two endangered animals.*"

## 5.1 Darwin identity

The support given by the Darwin Initiative (DI) has been explicitly recognised from the start of the project and although we secured further funding ("Evolutionary Distinct & Globally Endangered" programme & BBC Wildlife Fund) to expand the project, the project was always presented as a DI project. The project website has been our principal form of communication and has carried a link to the DI website from the beginning. All our presentations and publications have carried the DI logo. The British Embassy in Dominican Republic has been a particularly strong project supported and collaborator. The embassy promoted the project via its website and as a significant DI project during official functions such as the Queen's birthday party.

# 6 Monitoring and evaluation

No major changes were made to the design of the project. The original M&E system we designed originally was moderately useful and was complemented by a Durrell-led monthly reporting system which captured qualitative information of the progress of the project. Progress against the Purpose- and Output-level indicators is reported in Annex 1. In the development of the original project proposal we designed a number of qualitative indicators, many of which have helped all the project partners understand the extent to which we were meeting declared outputs. It would have been more useful to

have designed a higher proportion of quantitative indicators so we can more objectively demonstrate project achievements to external stakeholders. However, designing such indicators requires detailed information which wasn't available at the beginning of the project.

Below is a short analysis of the usefulness of the four project-level indicators we designed (under monitoring activities in the logframe):

*Indicator 1: Scientific delivery evaluated biannually by Durrell's and ZSL's Head of Conservation Programmes*

This indicator wasn't well framed, and wasn't useful. The Project Leader tracked the scientific delivery of the project in combination with Dr Sam Turvey. We did however report scientific progress to the relevant Directors in Durrell and ZSL. It would have been more useful to have quantified the state of the historical evidence-base and then designed an indicator to show how the project would have strengthened it.

*Indicator 2: Monitoring of increased skills/capacity of in-country conservationists/host-country project staff*

This indicator was useful and through regular performance appraisals we have been able to track the development of the number of skills within the field staff and the overall skill levels.

*Indicator 3: Surveys of attitudes towards native mammals among local communities*

We were able to conduct the baseline survey of awareness and perception levels in SW DR through an Imperial College MSc but we were unable to repeat this survey in Y3 to measure change. We did not have the project resources to complete the second survey and were unable to attract another MSc student to conduct the work.

*Indicator 4: Triannual project progress meetings with SOH, OPNRD and ZOODOM*

This indicator wasn't well-framed but committing to these regular formalised project meetings between SOH, ZOODOM and international partners provided useful dates in the year to track and review progress.

Shortly before the Species Action Planning workshop, the international and local partners held a meeting to conduct an internal evaluation to assess the extent to which the project has met his objectives, and how the individuals perceived the performance of the project. The key findings were:

- The internationally trained and field-based project manager (Dr Jose Nunez-Muno) was instrumental in the success of the project, including delivering a highly productive research programme, and building significant capacity within SOH and elsewhere.
- Using data sharing tools, such as Dropbox, was considered really important as it developed a culture of transparency between the international and national partners and provided efficient access to key project documents, e.g. budget, field manuals etc.
- Regular visits to the DR by international partner staff helped develop close and trusting working relationships.
- The high turnover of staff following changes in Dominican governments presents some serious challenges in terms of ensuring project results are taken up into national level policy decision-making.
- Working hard to nurture working relationships within the Ministry of Environment enabled the Species Action Planning process to be particularly effective.
- Investing in the social research as heavily as the biological enabled us to obtain a deeper understanding of this conservation issue.
- The extent of the local and international media attention was unexpected but highly useful. It would have been informative to have measured changes in awareness levels at the national level as the result of the project as anecdotally we believe them to have increased markedly. To do this however would probably have meant removing another activity within the project.

## 6.1 Actions taken in response to annual report reviews

We received only one annual report review, which was in 2010, and the following comments were received:

1. Inclusion of a baseline of host country capacity in conservation science and planning would have been very informative (See 4.2). Can this be expanded upon in the next annual report?
2. Have there been any notable barriers to skills development in host country pre-project?

3. A copy of or further detail of the methodology for the attitude survey would have been informative. Please provide.
4. What is the nature of the evidence for an appetite for biodiversity conservation (Output 4)?

As these were all requests for more information, or questions for clarity, we addressed these in our 2011 annual report by providing the relevant information.

# 7 Finance and administration

## 7.1 Project expenditure

2009-2013

| Item | **Budget** (in relation to project budget) | **Expenditure** | **Variance/ Comments** |
|---|---|---|---|
| Staff costs specified by individual | Field Biologist 18686<br>Jorge Brocca, Assistant Project Leader 4671<br>Jose Nunez Mino, Field Project Manager 67265<br>Mark O'Connell, GIS and modeller 2159<br>Mike Ellis, Website Developer 500<br>Patricia Toribio, Communications 1442<br>Pedro Martinez, Counterpart Project Manager 25639<br>Richard Young, Project Leader 7088<br>Sam Turvey, Assistant Project Leader 4671 | XXX | 0%<br>0%<br>-8.0%<br>0%<br>0%<br>0%<br>+11% (Pedro's contract was extended with increasing in salary)<br>0%<br>0% |
| Travel and subsistence | XXX | XXX | 1% |
| Equipment and supplies | 4WD vehicle 9000<br>Computers, software, digital printer 1400<br>Consumables 1500<br>Digital cameras 400<br>GPS units 600<br>Radiotracking equipment 3000<br>Video camera 500 | XXX | -14%<br>-1%<br>+14%<br>-6%<br>-3%<br>-2%<br>-18% |
| Overheads | XXX | XXX | +6% |
| Other Costs, Services | XXX | XXX | -2% |
| TOTAL | XXX | XXX | -1% |

## 7.2 Additional funds or in-kind contributions secured

In terms of additional cash contributions secured during the lifetime of the DI-funded phased of the project, we have secured approximately £110,000. This included a BBSRC grant for a PhD studentship at University of Reading worth roughly £80k. We obtained two BBCWF grants worth in total £18k, one from ZSL's Edge of Existence worth £5k and we raised around £5k for the project through fund-raising events such as giving talks and photograph sales.

We have not attempted to value the in-kind contributions we received during the project's lifetime but we have received various support from organisations within the DR NGO and private sectors, ranging from free accommodation for project staff at field sites (e.g. Punta Cana Ecological Foundation) to pro bono graphic design services to the National Geologic Service which provided GIS data for free. For more information on supporting organisations, see http://www.thelastsurvivors.org/the-project/supporting-organisations/.

## 7.3 Value of DI funding

Very few of the project results would have been achieved without the DI funding. The Darwin grant enabled us to employ a highly qualified and effective Field Project Manager (Dr Jose Nunez Mino) whom was instrumental in implementing the national-scale mammal survey and associated ecological research, raising awareness, training and mentoring local partner staff, overseeing the SAP process, and delivering general project management and reporting. The Darwin grant also helped us equip the project appropriately which enabled us to deliver the survey on such an ambitious geographic scale. Finally, without this DI grant we would not have been able to deliver the first ever Species Action Plan for two globally threatened and ecologically valuable mammal species.

# Annex 1 Report of progress and achievements against final project logframe for the life of the project

| Project summary | Measurable Indicators | Progress and Achievements | Actions required/planned for next period |
|---|---|---|---|
| **Goal**: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve<br>• The conservation of biological diversity,<br>• The sustainable use of its components, and<br>• The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources | | The project's longer term goal (i.e sub-goal), and therefore potential impact, was to generate knowledge, awareness and conservation capacity so that "the probability of long-term survival of Hispaniola's endemic land mammals and their habitats is significantly improved". An indicator of this potential impact is whether the Species Action Plan (SAP) is adopted into Dominican Republic National Biodiversity Strategy and Action Plan and priority activities from the SAP are initiated within 2 years of project end (i.e. by 2015). Based on the success of the SAP workshop and writing up process, and the appetite of the Dominican Government to incorporate endemic mammals into protected area planning, management and monitoring, it looks very hopeful indeed that the DI project will achieve its intended impact. | (do not fill not applicable) |
| **Purpose** Enabling the long-term conservation of the Hispaniolan solenodon and hutia through participatory species action planning, a strengthened evidence-base, an island-wide monitoring programme, and improved awareness | Data on conservation status and requirements of solenodon and hutia analysed and reported ▪ Key conservation zone maps produced and agreed across stakeholders ▪ Long-term monitoring protocols and survey design developed and guidelines drafted; monitoring steering committee established ▪ SAP workshops held and documents published ▪ SAPs adopted into the Dominican Republic NBSAP ▪ Evidence disseminated to stakeholders through awareness-raising programme ▪ 'Infomercial' film on Hispaniolan mammal conservation produced and broadcast on Dominican Republic television | As described in more detail in the Outputs below, we have significantly enhanced the evidence-base to underpin the planning, implementation and monitoring of conservation actions for these species and markedly increased national and international awareness of the species. | Roll out of the SAP and formation of the multi-stakeholder steering committee which will monitor its delivery is happening in the next 3 months. |

| Project summary | Measurable Indicators | Progress and Achievements | Actions required/planned for next period |
|---|---|---|---|
| **Output 1**. Scientifically robust data on conservation status and requirements of the Hispaniolan solenodon and hutia and their key threats are collected, analysed and disseminated | 1.a. Ecological and socio-economic research at field sites, baseline species occupancy survey and genetic analyses completed<br><br>1.b. GIS built and biological, environmental and national scale socio-economic data synthesised to allow mapping of key conservation zones<br><br>1.c. Minimum of 3 scientific papers submitted to international peer-reviewed journals describing distribution, density, habitat associations, phylogenetics and conservation requirements of endemic mammals<br><br>1.d. Triannual project progress meetings with OPNRD and partner NGOs<br><br>1.e. Easy-to-read pamphlet produced to summarise relevant science and distributed to stakeholders in advance of SAP workshops<br><br>1.f. Minimum of 2 articles published in IUCN Specialist Groups literature | We have achieved nearly all we set to regarding Output 1. The overall level of knowledge that we now have of the current and past distribution of these two species has significantly improved thanks to the implementation of this project, with a number of previously unknown and currently unprotected populations identified. Furthermore, we can confidently say that the current distribution maps published on the IUCN Red List website of both species will need to be modified and updated, with extensions to the global range of both species needed, work which is already underway.<br><br>We have submitted 3 scientific (2 already published) papers on the ecology and genetics of the two species. The project has delivered five MSc theses, and one PhD study is now in the write-up phase. A GIS and Access database are used to manage and analyse project data and both sit within an online folder that is accessible to DR and international project partners. Over 3000 project leaflets were produced and distributed around the local communities in our focal field sites. We have not submitted articles to IUCN SG newsletters due to the change in IUCN SG structure in the past 3 years. | |
| Activity 1.1 Data collection at target field sites | | Completed | |
| Activity 1.2, Data analysis, construction of GIS and mapping | | Completed | |
| Activity 1.3, Preparation of scientific and other technical documents | | Completed | |
| **Output 2**. 2. Skills in conservation biology and planning are strengthened in local partner organisations and more widely in Dominican Republic | 2.a. Counterpart project manager attains DESMAN post-grad certificate; 2 in-country conservationists attend EDGE Fellows training workshop at ZSL<br>2.b. Minimum of 20 Hispaniolan conservationists attend Durrell-led ISLA course run in Dominican Republic.<br>2.c. Counterpart project manager leads drafting of 1 article for peer-reviewed | Nearly all of the original objectives within Output 2 have been achieved. The counterpart project manager attained his PGC in Endangered Species Management. Two of our field assistants received EDGE sponsored training, and Durrell ran the ISLA course in DR in 2011 with 18 participants. Whilst the counterpart project manager successfully led the SAP process, he didn't have the capability to lead the drafting of a scientific paper. Regular performance appraisals showed the excellent progress made by the project field staff in terms of developing project management and scientific skills.<br><br>The project achieved other unplanned objectives under Output 2. For example, | |

| Project summary | Measurable Indicators | Progress and Achievements | Actions required/planned for next period |
|---|---|---|---|
| | journal<br>2.d. Counterpart project manager plays key role in leading SAP process<br>2.e. Regular management reviews of capacity of in-country project staff by UK field scientists shows successful transfer of skills and responsibility through project | two Haitian field biologists (Anderson Jean & Enold L Jean) from the Audubon Society of Haiti, employed by the Darwin Initiative funded project in the Massif de la Hotte, were trained in solenodon and hutia research field techniques by the team in Dominican Republic. | |
| Activity 2.1. International training courses for Hispaniolan project participants | | Completed | |
| Activity 2.2. Ongoing skills transfer for counterpart project manager and other key project staff | | Completed | |
| Activity 2.3. Performance appraisals of host-country project staff | | Completed | |
| **Output 3.** Awareness of status and conservation needs of Hispaniolan endemic land mammals substantially improved at local, national and international level | 3.a. Minimum of 500 endemic mammal calendars and posters produced and distributed at meetings with communities local to project field sites<br><br>3.b. 'Infomercial' film on Hispaniolan mammal conservation broadcast on Dominican Republic television and at local community meetings<br><br>3.c. Surveys of attitudes to endemic mammals shows improved awareness of solenodon and hutia in communities local to project field sites and significant decrease in erroneous perception of native mammals as pests<br><br>3.d. Solenodon and Hutia children's day held at ZOODOM, Santo Domingo<br><br>3.e. Minimum of 3 national radio and TV interviews, 3 national and 1 international newspaper articles. Minimum of 3 scientific papers submitted<br><br>3.f. Increasing number of hits on EDGE and other project partner websites | The project has far exceeded its objectives within Output 3. At the local scale, a combination of giving public talks and leaflet (http://www.thelastsurvivors.org/wp-content/uploads/Folleto-Los-Ultimos-Sobrevivientes.pdf) and t-shirt distribution has led much improved awareness levels. In villages where no project activity had taken place prior, awareness levels within the farming population of the existence of the 2 mammal species was around 20%. In villages, where our project had been active for over a year these awareness levels were typically around 70-80%.<br><br>At the national level, the species received an unprecedented level of media interest with multiple newspaper, TV and radio coverage and far exceeded our original targets. We were not able to get our infomerical films broadcast on DR TV, although we did use them at many public meetings. Another important event was the use of the solenodon as one the nation's official stamps by the Dominican Postal Service (Servicio Filatélico Inposdom). ZooDom also made good progress with devising a programme of educational and awareness-raising activities based at the National Zoo. They have produced a range of materials including PowerPoint presentations and pamphlets which are now used as routine in their daily talks to visiting members of the public and during school trips. Their Education Department has also created a game called "Barajas solenodonte" (solenodon cards) in which every card contains important data about the species. These cards are offered as gifts to the Zoo's visitors. These efforts were further enhanced by the visit to the project of Dr Rebecca Coe from ZSL in October 2010. She spent time with ZooDom's Education Department and assessed their needs and made recommendations on the further development of activities.<br><br>At the international level, the project (and in particular the solenodon) has | |

| Project summary | Measurable Indicators | Progress and Achievements | Actions required/planned for next period |
|---|---|---|---|
| | | attracted a huge amount of media interest. This included extensive coverage by BBC web, radio and TV news with nearly 1 million hits to the BBC webpages covering the story. Across the 3 years of the project, we received 36,000 unique visitors to the project website. Towards the end of the project, the project was also covered by the BBC's Attenborough's Ark programme with footage of the field team, the solenodon and an interview with Jose Nunez-Mino. | |
| Activity 3.1. Programme of local and national awareness raising | | Completed | |
| Activity 3.2. . Programme of international awareness raising | | Completed | |
| Activity 3.3. Surveys of attitudes towards focal species and habitat conducted in local communities | | Part-completed. We conducted baseline surveys in the Bahoruco and Los Haitses protected areas, but were unable to conduct follow-up surveys in Y3. | |
| **Output 4.** Strengthened capacity for conserving and monitoring the Hispaniolan solenodon and hutia | 4.a. Two participatory Species Action Planning workshops and consultation with local communities held, and documents published before project end<br><br>4.b. SAPs adopted into Dominican Republic NBSAP<br><br>4.c. Priority SAP activities incorporated into OPNRD and NGO annual workplans within two years of project completion<br><br>4.d. Monitoring data collection protocols and experimental design developed and fully tested and manuals produced<br><br>4.e. Steering committee established and prepared to oversee implementation of endemic land mammals monitoring programme | A total of 31 organisations were represented during the Species Action Planning workshop held in October 2012. It was decided to cover both species in one single workshop given the similarity of the threats and conservation actions needed. Several members of village communities neighbouring key solenodon and/or hutia populations were also present and contributed to the action planning process. This fully inclusive process can be attributed to two project actions: 1. The large network of stakeholders which the project engaged with and 2. Capacity building within SOH in order to instil the confidence and ability to engage in the action planning process. The Ministry of Environment and Natural Resources is currently developing its island-wide monitoring programme and will be using the methods developed by the project after inviting project representatives to several of the planning workshops.<br><br>A manual has been written which described the monitoring programme design and data collection protocols and is on the project website. A Spanish translation has been given to the Government.<br><br>The steering committee which will provide technical advice to the Government on delivery of the monitoring programme and will also track delivery of the SAP is still being assembled and is taking longer than expected. We are awaiting news from the Government on when the SAP will be adopted into the NBSAP. | |
| Activity 4.1. Species Action Planning workshops, consultation with local communities and adoption of SAPs into Dominican Republic's NBSAP | | Completed | |
| Activity 4.2. Design of monitoring programme and supporting materials, and launch of steering committee | | Near completion. The steering committee is still being assembled which is taking longer than expected. | |

# Annex 2 Project's final logframe, including criteria and indicators

| Project summary | Measurable Indicators | Means of verification | Important Assumptions |
|---|---|---|---|
| **Goal**:<br>Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources. | | | |
| Sub-Goal: The probability of long-term survival of Hispaniola's endemic land mammals and their habitats is significantly improved | Species Action Plans (SAPs) adopted into Dominican Republic National Biodiversity Strategy and Action Plan and priority activities from the SAPs are initiated within 2 years of project end | Dominican Republic National Biodiversity Strategy documents<br>▪ OPNRD and local NGO partner workplans | |
| Purpose: Enabling the long-term conservation of the Hispaniolan solenodon and hutia through participatory species action planning, a strengthened evidence-base, an island-wide monitoring programme, and improved awareness | Data on conservation status and requirements of solenodon and hutia analysed and reported ▪ Key conservation zone maps produced and agreed across stakeholders ▪ Long-term monitoring protocols and survey design developed and guidelines drafted; monitoring steering committee established ▪ SAP workshops held and documents published ▪ SAPs adopted into the Dominican Republic NBSAP ▪ Evidence disseminated to stakeholders through awareness-raising programme ▪ 'Infomercial' film on Hispaniolan mammal conservation produced and broadcast on Dominican Republic television | Project annual reports, newsletters and partner websites ▪ Scientific literature ▪ SAPs published in conjunction with IUCN and on project partner websites ▪ Government biodiversity strategy documents ▪ Radio and TV transcripts, newspaper articles ▪ Project partner websites hit-count | Close collaboration and communication between project partners ▪<br>Dominican Republic government support continues throughout project |
| Outputs<br>1. Scientifically robust data on conservation status and requirements of the Hispaniolan solenodon and hutia and their key threats are collected, analysed and disseminated | 1.a. Ecological and socio-economic research at field sites, baseline species occupancy survey and genetic analyses completed<br>1.b. GIS built and biological, environmental and national scale socio-economic data synthesised to allow mapping of key conservation zones<br>1.c. Minimum of 3 scientific papers submitted to international peer-reviewed journals describing distribution, density, habitat associations, phylogenetics and conservation requirements of endemic mammals<br>1.d. Triannual project progress meetings with OPNRD and partner NGOs<br>1.e. Easy-to-read pamphlet produced to summarise relevant science and distributed to stakeholders in advance of SAP workshops<br>1.f. Minimum of 2 articles published in IUCN Specialist Groups literature | Peer-reviewed scientific literature ▪ Project annual reports ▪ Project progress meeting minutes ▪ Project partner websites ▪ OPNRD annual reports ▪ IUCN Specialist Group website and associated literature | Dominican Republic government continues to provide permits for field research |

| | | | |
|---|---|---|---|
| 2. Skills in conservation biology and planning are strengthened in local partner organisations and more widely in Dominican Republic | 2.a. Counterpart project manager attains DESMAN post-grad certificate; 2 in-country conservationists attend EDGE Fellows training workshop at ZSL<br>2.b. Minimum of 20 Hispaniolan conservationists attend Durrell-led ISLA course run in Dominican Republic.<br>2.c. Counterpart project manager leads drafting of 1 article for peer-reviewed journal<br>2.d. Counterpart project manager plays key role in leading SAP process<br>2.e. Regular management reviews of capacity of in-country project staff by UK field scientists shows successful transfer of skills and responsibility through project | Post-graduate certificate awarded by University of Kent ▪ Peer-reviewed literature ▪ Course attendance records and feedback forms ▪ Project annual reports ▪ SAP document authorship | Core project staff remain in post throughout project ▪ Project offers appropriate training for local partner staff |
| 3. Awareness of status and conservation needs of Hispaniolan endemic land mammals substantially improved at local, national and international level | 3.a. Minimum of 500 endemic mammal calendars and posters produced and distributed at meetings with communities local to project field sites<br>3.b. 'Infomercial' film on Hispaniolan mammal conservation broadcast on Dominican Republic television and at local community meetings<br>3.c. Surveys of attitudes to endemic mammals shows improved awareness of solenodon and hutia in communities local to project field sites and significant decrease in erroneous perception of native mammals as pests<br>3.d. Solenodon and Hutia children's day held at ZOODOM, Santo Domingo<br>3.e. Minimum of 3 national radio and TV interviews, 3 national and 1 international newspaper articles. Minimum of 3 scientific papers submitted<br>3.f. Increasing number of hits on EDGE and other project partner websites | Project annual reports ▪ Radio and TV transcripts, newspaper articles, scientific papers ▪ Project partner websites and hit-count | Media willing to publicise plight of Hispaniolan endemic mammals |
| 4. Strengthened capacity for conserving and monitoring the Hispaniolan solenodon and hutia | 4.a. Two participatory Species Action Planning workshops and consultation with local communities held, and documents published before project end<br>4.b. SAPs adopted into Dominican Republic NBSAP<br>4.c. Priority SAP activities incorporated into OPNRD and NGO annual workplans within two years of project completion<br>4.d. Monitoring data collection protocols and experimental design developed and fully tested and manuals produced<br>4.e. Steering committee established and prepared to oversee implementation of endemic land mammals monitoring programme | SAPs published on project partner websites ▪ Government biodiversity strategy documents ▪ OPNRD and NGO annual workplans ▪ Monitoring field manuals available on project partner website ▪ Project annual reports ▪ Steering committee meeting minutes | Effective facilitation at SAP workshops ▪<br>Majority of invited stakeholders attend workshops ▪ Continuing support from Dominican Republic government and NGOs for monitoring endemic mammals |

| |
|---|
| **Activities** (details in workplan) |
| 1.1. Data collection at target field sites |
| 1.2 Data analysis, construction of GIS and mapping |
| 1.3. Preparation of scientific and other technical documents |
| 2.1. International training courses for Hispaniolan project participants |
| 2.2. Ongoing skills transfer for counterpart project manager and other key project staff |
| 2.3. Performance appraisals of host-country project staff |
| 3.1. Programme of local and national awareness raising |
| 3.2. Programme of international awareness raising |
| 3.3. Surveys of attitudes towards focal species and habitat conducted in local communities |
| 4.1. Species Action Planning workshops, consultation with local communities and adoption of SAPs into Dominican Republic's NBSAP |
| 4.2. Design of monitoring programme and supporting materials, and launch of steering committee |
| **Monitoring activities**: |
| Indicator 1: Scientific delivery evaluated biannually by Durrell's and ZSL's Head of Conservation Programmes |
| Indicator 2: Monitoring of increased skills/capacity of in-country conservationists/host-country project staff |
| Indicator 3: Surveys of attitudes towards native mammals among local communities |
| Indicator 4: Triannual project progress meetings with SOH, OPNRD and ZOODOM |

# Annex 3 Project contribution to Articles under the CBD

## Project Contribution to Articles under the Convention on Biological Diversity

| Article No./Title | Project % | Article Description |
|---|---|---|
| 6. General Measures for Conservation & Sustainable Use | | Develop national strategies that integrate conservation and sustainable use. |
| 7. Identification and Monitoring | 40% | Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data. |
| 8. In-situ Conservation | | Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources. |
| 9. Ex-situ Conservation | | Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources. |
| 10. Sustainable Use of Components of Biological Diversity | | Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector. |
| 11. Incentive Measures | | Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity. |
| 12. Research and Training | 30% | Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations). |
| 13. Public Education and Awareness | 30% | Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes. |
| 14. Impact Assessment and Minimizing Adverse Impacts | | Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage. |
| 15. Access to Genetic Resources | | Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits. |

| Article No./Title | Project % | Article Description |
|---|---|---|
| 16. Access to and Transfer of Technology | | Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies. |
| 17. Exchange of Information | | Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge |
| 19. Bio-safety Protocol | | Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research. |
| Other Contribution | | Smaller contributions (eg of 5%) or less should be summed and included here. |
| Total % | 100% | Check % = total 100 |

# Annex 4 Standard Measures

| Code | Description | Totals (plus additional detail as required) |
|---|---|---|
| **Training Measures** | | |
| 1a | Number of people to submit PhD thesis | 1 (expected submission date of late 2013) |
| 1b | Number of PhD qualifications obtained | 0 |
| 2 | Number of Masters qualifications obtained | 5 |
| 3 | Number of other qualifications obtained | 1 |
| 4a | Number of undergraduate students receiving training | 0 |
| 4b | Number of training weeks provided to undergraduate students | 0 |
| 4c | Number of postgraduate students receiving training (not 1-3 above) | 0 |
| 4d | Number of training weeks for postgraduate students | 0 |
| 5 | Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification( ie not categories 1-4 above) | 5 |
| 6a | Number of people receiving other forms of short-term education/training (ie not categories 1-5 above) | 18 |
| 6b | Number of training weeks not leading to formal qualification | 0 |
| 7 | Number of types of training materials produced for use by host country(s) | 1 |
| **Research Measures** | | |
| 8 | Number of weeks spent by UK project staff on project work in host country(s) | 12 (not including the British project manager whom spent 2.75 years in the DR) |
| 9 | Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s) | 1 |
| 10 | Number of formal documents produced to assist work related to species identification, classification and recording. | 1 |
| 11a | Number of papers published or accepted for publication in peer reviewed journals | 3 |
| 11b | Number of papers published or accepted for publication elsewhere | 0 |
| 12a | Number of computer-based databases established (containing species/generic information) and handed over to host country | 1 |

| Code | Description | Totals (plus additional detail as required) |
|---|---|---|
| 12b | Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country | 0 |
| 13a | Number of species reference collections established and handed over to host country(s) | 0 |
| 13b | Number of species reference collections enhanced and handed over to host country(s) | 0 |
| **Dissemination Measures** | | |
| 14a | Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work | 1 |
| 14b | Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated. | 3 |
| 15a | Number of national press releases or publicity articles in host country(s) | 20 |
| 15b | Number of local press releases or publicity articles in host country(s) | 0 |
| 15c | Number of national press releases or publicity articles in UK | 2 |
| 15d | Number of local press releases or publicity articles in UK | 0 |
| 16a | Number of issues of newsletters produced in the host country(s) | 0 |
| 16b | Estimated circulation of each newsletter in the host country(s) | 0 |
| 16c | Estimated circulation of each newsletter in the UK | 0 |
| 17a | Number of dissemination networks established | 1 |
| 17b | Number of dissemination networks enhanced or extended | 0 |
| 18a | Number of national TV programmes/features in host country(s) | 3 |
| 18b | Number of national TV programme/features in the UK | 5 |
| 18c | Number of local TV programme/features in host country | 0 |
| 18d | Number of local TV programme features in the UK | 2 |
| 19a | Number of national radio interviews/features in host country(s) | 2 |
| 19b | Number of national radio interviews/features in the UK | 4 |
| 19c | Number of local radio interviews/features in host country (s) | 0 |

| Code | Description | Totals (plus additional detail as required) |
|---|---|---|
| 19d | Number of local radio interviews/features in the UK | 5+ |
| **Physical Measures** | | |
| 20 | Estimated value (£s) of physical assets handed over to host country(s) | Approximately £11.5k – 4WD vehicle, GPS units, laptops, radiotelemetry equipment |
| 21 | Number of permanent educational/training/research facilities or organisation established | 0 |
| 22 | Number of permanent field plots established | 294 |
| 23 | Value of additional resources raised for project | Approximately £110,000<br>o BBSRC - £80k<br>o BBCWF - £10k + £8k<br>o EDGE - £5k<br>o Misc - £3k |
| **Other Measures used by the project and not currently including in DI standard measures** | | |
| | | |
| | | |
| | | |
| | | |

# Annex 5 Publications

| Type<br>(e.g. journals, manual, CDs) | Detail<br>(title, author, year) | Publishers<br>(name, city) | Available from<br>(e.g. contact address, website) | Cost £ |
|---|---|---|---|---|
| Project website | n/a | n/a | www.thelastsurvivors.org<br>ww.losultimossobrevivientes.org | £0 |
| MSc thesis | Foraging habitat preference of the Hispaniolan Solenodon (Solenodon paradoxus).”(2011) Sarah Rose Hoy. MSc in Ecology, Evolution and Conservation. Imperial College London. | Imperial College London | http://www.iccs.org.uk/ | £0 |
| MSc thesis | Habitat-species association in the Hispaniolan solenodon (Solenodon paradoxus); a quantitative study of an endangered Caribbean mammal. (2011). Rocío A. Pozo Rodríguez (MSc Conservation Science. Imperial College, London) | Imperial College London | http://www.iccs.org.uk/wp-content/thesis/consci/2011/Pozo_Rodriguez.pdf | £0 |
| MSc thesis | Fernandez Secades, Cristina – Analyzing human-wildlife conflict reports and public awareness and perceptions of Solenodon paradoxus and Plagiodontia aedium, Hispaniola’s last endemic mammals (West Indies) | Imperial College London | http://www.iccs.org.uk/wp-content/thesis/consci/2010/Secades.pdf | £0 |
| MSc thesis | “Local Ecological Knowledge in Los Haitises National Park” Claudia Llibre (MSc Environmental Management) Due to be completed in 2012 | Instituto Tecnologico de Santo Domingo | | £0 |
| MSc thesis | “Human-wildlife conflict in the Dominican Republic: Investigating the predation risk to | University of East Anglia | | £0 |

| | | | | |
|---|---|---|---|---|
| | Hispaniolan solenodon and hutia from domestic dogs" (2012) by Jesse Knapp (Applied ecology and conservation) | | | |
| Leaflet | Last Survivors Leaftlet | Project | http://www.thelastsurvivors.org/wp-content/uploads/Folleto-Los-Ultimos-Sobrevivientes.pdf | £0 |
| Newsletter Article | Hispaniola's endemic land mammals:<br>The Last Survivors | Darwin Initiative | http://www.thelastsurvivors.org/wp-content/uploads/DARWIN_NEWS_17.pdf | £0 |
| Infomercial films | Various | The Last Survivors & Funk Productions | http://www.youtube.com/watch?v=BGRNWhAJ8x4<br>http://www.youtube.com/watch?v=IPkRGpGiQ4s<br>http://www.youtube.com/watch?v=oL_-lXQ9pZ8<br>http://www.youtube.com/watch?v=AAf8FEjtYzE | £0 |
| Manual | Island Led Species Action – Hispaniola: Course handbook | Durrell Wildlife Conservation Trust | http://www.thelastsurvivors.org/wp-content/uploads/ISLA-Hispaniola-2011-Course-Handbook.pdf | £0 |
| Journal article | Brace, S., Barnes, I., Powell, A., Pearson, R., Woolaver, L.G., Thomas, M.G. & Turvey, S.T. (2012). Population history of the Hispaniolan hutia *Plagiodontia aedium*(Rodentia: Capromyidae): testing the model of ancient differentiation on a geotectonically complex Caribbean island. *Molecular Ecology* DOI: 10.1111/j.1365-294X.2012.05514.x | Molecular Ecology | http://www.ucl.ac.uk/mace-lab/publications/articles/2012/brace-2012-hispaniolan.pdf | £0 |
| Journal article | Hansford J, Nunez-Mino JM, Young RP, Brace S, Brocca J, Turvey ST. (2012) Taxonomy-testing and the 'Goldilocks Hypothesis': morphometric analysis of species diversity in living and extinct Hispaniolan | Systematics and Biodiversity | http://www.tandfonline.com/loi/tsab20 | £0 |

| | | | | |
|---|---|---|---|---|
| | hutias (Capromyidae: Plagiodontinae). Systematics and Biodiversity, 10(4): 491–507 | | | |
| Book chapter | Milner-Gulland E.J., Durant Sarah, Woodroffe Rosie, and Young Richard (2013) Mammals, Conservation Efforts for. In: Levin S.A. (ed.) Encyclopedia of Biodiversity, second edition, Volume 4, pp. 708-720. Waltham, MA: Academic Press. | Encyclopaedia of Biodiversity | n/a | £0 |
| Species Action Plan | Plan de Accion para la Conservacion de los Mamiferos Terrestres Endemicos de la Hispaniola, Solendon paradoxus y Plagiodontia aedium, 2013-2018. | Ministerio de Medio Ambiente y Recursos Naturales | www.thelastsurvivors.org | £0 |
| Factsheet | Species of the Day: Cuvier's Hutia | IUCN Amazing Species | http://www.iucnredlist.org/sotdfiles/plagiodontia-aedium.pdf | £0 |
| Factsheet | Species of the Day: Hispaniolan Solenodon | IUCN Amazing Species | http://www.iucnredlist.org/sotdfiles/solenodon-paradoxus.pdf | £0 |
| TV, radio, web news articles | Close encounter with a bizarre venomous beast<br>The cave of bones: A story of solenodon survival<br>Ghost hunters: On the trail of a 'living fossil'<br>Ancient mammal 'threatened with extinction' | BBC | http://www.bbc.co.uk/news/10149148<br>http://www.bbc.co.uk/news/10147688<br>http://www.bbc.co.uk/news/10146397<br>http://news.bbc.co.uk/today/hi/today/newsid_8717000/8717439.stm | £0 |
| Web, magazine and newspaper articles | Various Dominican and international news articles | Der Spiegel, Daily Telegraph, etc | See http://www.thelastsurvivors.org/the-project/in-the-news/ for more details | £0 |
| Book chapter | Saving the world's weirdest mammal in Life is Good: Conservation in an Age of Mass Extinction, Jeremy Hance | Mongabay | http://www.mongabay.com/book-life-is-good-jeremy-hance.html | £0 |

| | | | | |
|---|---|---|---|---|
| Book 'chapter' | Species on the Edge of Survival | IUCN/Harper Collins | | £? |
| TV Programme | Hispaniolan solenodon and project feature on BBC's Attenborough's Ark | BBC | http://www.bbc.co.uk/programmes/b01ntt8p | £0 |
| Facebook | The Last Survivors Facebook page | Facebook | http://www.facebook.com/groups/thelastsurvivors/ | £0 |
| For more details on articles arising from the project, go to http://www.thelastsurvivors.org/the-project/in-the-news/ | | | | |

## Darwin Contacts

| | |
|---|---|
| **Ref No** | 17-025 |
| **Project Title** | Building evidence and capacity to conserve Hispaniola's endemic land mammals |
| | |
| **UK Leader Details** | |
| Name | Dr Richard Young |
| Role within Darwin Project | Project Leader |
| Address | Durrell Wildlife Conservation Trust, Les Augres Manor, Jersey, Channel Islands |
| Phone | |
| Fax | |
| Email | |
| **Other UK Contact (if relevant)** | |
| Name | Dr Samuel Turvey |
| Role within Darwin Project | Assistant Project Leader |
| Address | Institute of Zoology, ZSL London Zoo, Regents Park, London |
| Phone | |
| Fax | |
| Email | |
| **Partner 1** | |
| Name | Jorge Brocca |
| Organisation | Sociedad Ornitologica de la Hispaniola |
| Role within Darwin Project | Assistant Project Leader |
| Address | Sociedad Ornitologica de la Hispaniola, c/o Parque Zoológico Nacional, Santo Domingo, Dominican Republic |
| Fax | |
| Email | |
| **Partner 2 (if relevant)** | |
| Name | |
| Organisation | |
| Role within Darwin Project | |
| Address | |
| Fax | |
| Email | |